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CURRENT LITERATURE

BOOK REVIEWS

Contributions to plant physiology

In a little booklet¹ of 95 pages is given the work of the department of plant physiology at Johns Hopkins University. LIVINGSTON gives a description of the department, discussing the aims and the work in progress or so far accomplished, to which is appended a list of the publications from the laboratory arranged by years. The rest of the book is devoted to abstracts of work in progress or recently completed. A list of the authors and titles of these articles will give an idea of the number of investigators in the department, along with the nature and scope of the problems being covered: B. E. LIVINGSTON, Atmometric units; The vapor tension deficit as an index of the moisture condition of the air; Incipient drying and temporary and permanent wilting of plants, as related to external and internal conditions; B. E. LIVINGSTON and E. E. FREE, The effects of deficient soil oxygen on the roots of higher plants; E. E. FREE, The effect of aeration on the growth of buckwheat in water cultures; Symptoms of poisoning by certain elements in *Pelargonium* and other plants; E. E. FREE and S. F. TRELEASE, The effects of certain mineral poisons on young wheat plants in three-salt nutrient solutions; The effect of renewal of culture solutions on the growth of young wheat plants in water cultures; S. F. TRELEASE, The relation of the concentration of the nutrient solution to the growth of young wheat plants in water cultures; H. S. FAWCETT, Preliminary note on the relation of temperature to the growth of certain parasitic fungi in cultures; The geographical distribution of the citrus diseases melanose and stem-end rot; HOWARD PULLING, Some unusual features of a sub-arctic soil; The experimental determination of a dynamic soil-moisture medium; F. M. HILDEBRANDT, Leaf product as an index of growth in soy bean; A method for approximating sunshine intensity from ocular observations of cloudiness; F. S. HOLMES, Moisture equilibrium in pots of soil equipped with auto-irrigators; E. S. JOHNSTON, Seasonal variations in the growth rates of buckwheat plants under greenhouse conditions; W. E. TOTTINGHAM, On the relation of chlorine to plant growth.

Aside from many individual contributions, the work of the laboratory groups itself largely about three large topics: water relations of plants, inor-

¹ Contributions to Plant Physiology, the Department of Plant Physiology, Johns Hopkins University, Reprint from the Johns Hopkins University Circular, March 1917.

ganic salt relations of plants, and relation of plants to climatic conditions. A quotation from the book expresses the point of view under which the work of the laboratory is being conducted.

To summarize the last few paragraphs, our operations have been and are directed toward a dynamic analysis of plant activity. The point of view here employed may perhaps be envisaged if the reader will regard the living plant in somewhat the same general way as he might any complex machine, such as a gasoline motor, for example. To understand its working, one must understand how and how much various conditions may effect a machine; in short, he must become an engineer with respect to that particular mechanism. Dynamic plant physiology may be said, then, to be engineering science as applied to the living plant. It can progress, then, only through quantitative studies, through the comparison of efficiency graphs and curve-tracings made by recording instruments, through the mathematical interpretation of relations between conditions and process rates, etc., and it is with just this sort of studies that our investigations have to do.

It might be well if scientific departments generally issued such statements of their aims and progress.—WM. CROCKER.

NOTES FOR STUDENTS

Rhizoctonia.—In a paper constituting a continuation of former studies of the genus *Rhizoctonia*, ERIKSSON² adds an account of two further forms, *R. Medicaginis* DC. and *R. Asparagi* Fuckel. The paper deals largely with historical and descriptive matter; the chief interest, however, centers in the questions relating to the taxonomy and morphology of these fungi. In 1851 the TULASNE brothers united *R. crocorum* DC., *R. Medicaginis*, and most of the forms of *Rhizoctonia* occurring on other hosts under one species, which they called *R. violacea* Tul. ERIKSSON, basing his judgment partly upon the association of *Leptosphaeria circinans* (Fuckel) Sacc. with *R. Medicaginis* reported in the literature and also observed by him, and partly on the resemblance of the hyphae of the germinating spores of *Leptosphaeria* to the mycelium of *Rhizoctonia*, concludes that *Rhizoctonia Medicaginis* has an ascogenous fruiting stage and therefore is distinct from *R. violacea*, which he had doubtfully associated with *Hypochnus violaceus* (Tul.) Erikss. Regarding the specificity of *R. Asparagi*, ERIKSSON concludes, as a result of cross-infection experiments conducted by means of infected soil in deep concrete frames, that this fungus is probably a distinct form whose position cannot be determined until something is known of the perfect stage.

DUGGAR,³ in a paper published almost simultaneously with that of ERIKSSON, confirms the view of the brothers TULASNE that all the forms of the violet

² ERIKSSON, J., Fortgesetzte Studien über *Rhizoctonia violacea* DC. Arkiv. Bot. 12:1-31. 1915.

³ DUGGAR, B. M., *Rhizoctonia crocorum* (Pers.) DC. and *R. Solani* Kühn (*Corticium vagum* B. and C.), with notes on other species. Ann. Mo. Bot. Gard. 1:403-458. 1915.